

REMARKS

I. Amendments to the Claims

Claims 1-4, 11, 13, 14, and 22-26 are all the claims currently pending in the application. After entry of this amendment, claims 1, 2, 4, 11, 13, 14, 22, 24, and 26 will be all the claims pending in the application.

Claims 1 and 11 have been amended to change the recited hybridization conditions from “6X SSC, 0.1 % SDS, and 68°C” to “5X SSC, 0.02% SDS, and 68°C.” Support for this amendment can be found at page 70 of the specification.

Claims 1 and 11 have also been amended to recite “naturally-occurring” polypeptides. Naturally-occurring diglycosidase enzymes are described throughout the specification.

Finally, claims 1 and 11 have been further amended to delete the genera *Rhizopus*, *Talaromyces*, *Mortierella*, *Cryptococcus*, *Microbacterium*, and *Actinoplanes*.

Claim 3 has been canceled.

Claims 23 and 25 have also been canceled as no longer limiting claims 1 and 11.

II. Specification/Informalities

At page 2, paragraph 6 of the Office Action, the objection to the improper denotation of the trademarks on page 26 of the specification was maintained.

Specifically, the Examiner stated that Applicants have not capitalized the trademarks as required by MPEP § 608.01(v).

The specification has been amended to capitalize the trademarks. Therefore, Applicants respectfully request reconsideration and withdrawal of the objection.

III. Claim Rejections Under 35 U.S.C. § 112, First Paragraph - Written Description

At page 3, paragraph 7 of the Office Action, claims 1, 2, 11, 13, 14, and 23-26 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

Specifically, the Examiner contended that the highly stringent hybridization conditions of “6X SSC, 0.1 % SDS, and 68°C” are not supported by the specification.

Applicants have amended claims 1 and 11 to recite the highly stringent hybridization conditions of 5X SSC, 0.02% SDS, and 68°C described at page 70 of the specification.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

VI. Claim Rejections Under 35 U.S.C. § 112, First Paragraph - Enablement

At page 3, paragraph 8 of the Office Action, claims 1-3, 11, 13, 14, and 23-26 were rejected under 35 U.S.C. § 112, first paragraph, for failure to comply with the enablement requirement. This rejection was maintained for reasons of record.

Specifically, the Examiner acknowledged that the diglycosidase from *Aspergillus fumigatus* and the cell extracts from the bacterial strains disclosed at page 45 of the specification have a broad substrate specificity, as argued by Applicants in the amendments filed May 13 and

June 22, 2004. However, the Examiner maintained his position that the full scope of the claimed polypeptides is not enabled.

The Examiner stated that because the claims are not limited to polypeptides isolated from the bacterial strains disclosed at page 45 of the specification, instead broadly encompassing polypeptides isolated from any of the recited genera, and because the claims broadly encompass various mutant and variant polypeptides, the specification fails to provide sufficient guidance for making the claimed mutants and variants.

A. *Claims 1 and 11*

Claims 1 and 11 have been amended to recite polypeptides isolated from the genera *Aspergillus*, *Penicillium*, *Rhizomucor*, and *Corynebacterium*. For each of these genera, diglycosidase enzymes from more than one species have been isolated and characterized (see Table 6 at page 45 of the specification). Furthermore, claims 1 and 11 have been amended to recite “naturally-occurring” polypeptides, so that the claims no longer encompass endogenously expressed mutants generated by UV and/or chemical mutagenesis, or recombinantly expressed variants.

Applicants submit that a person of ordinary skill in the art would know how to make and use naturally-occurring diglycosidase enzymes from *Aspergillus*, *Penicillium*, *Rhizomucor*, and *Corynebacterium*, for at least the following reasons.

First, the hybridization results described in Example 10 on pages 68-70 of the specification indicate that the naturally-occurring diglycosidases from all the tested species of

Aspergillus, *Penicillium*, *Rhizomucor*, and *Corynebacterium* are highly conserved. A person of ordinary skill in the art would have no reason to expect that naturally-occurring enzymes from other species of these genera would not also share a similar structure. Thus, a person of ordinary skill in the art would expect that the structurally similar diglycosidases could be easily isolated, given the sequence of the diglycosidase of *Aspergillus fumigatus*. For example, the specification at page 21 describes a method of obtaining the diglycosidase gene from genomic or cDNA libraries of other microorganisms, using the gene from *Aspergillus fumigatus* as a probe for hybridization. In addition, a routine PCR-based method of obtaining the gene is described on page 22. Furthermore, a person of ordinary skill in the art would predict that the protein purification scheme outlined on pages 45 to 47 would apply to other naturally-occurring diglycosidases as well as the enzyme of *Aspergillus fumigatus*. In fact, at page 2 of the Declaration submitted with the Amendment filed May 13, 2004 in the present application, Mr. Tsuruhami has shown that the diglycosidase from *Penicillium multicolor* can be purified in accordance with the disclosed protein purification method.

Second, the naturally-occurring diglycosidase enzymes from all the tested species of *Aspergillus*, *Penicillium*, *Rhizomucor*, and *Corynebacterium* possess broad substrate activity against disaccharide glycosides that have a glucose moiety at the aglycon side (see Example 16 on page 76). Accordingly, a skilled artisan would know how to use naturally-occurring diglycosidases from any species of *Aspergillus*, *Penicillium*, *Rhizomucor*, and *Corynebacterium* to cleave these disaccharide glycosides.

Accordingly, making and using the invention recited in claims 1 and 11 would not require undue experimentation, and Applicants respectfully request reconsideration and withdrawal of this aspect of the rejection.

B. Claims 24 and 26

Dependant claims 24 and 26 recite naturally-occurring polypeptides isolated from the particular species listed in Table 6 of the specification.

Applicants submit that the polypeptides recited in claims 24 and 26 are enabled for at least the following reasons.

The hybridization results described in Example 10 on pages 68-70 of the specification indicate that the naturally-occurring diglycosidases from all the species described in Table 6 are highly conserved. Thus, similar to above, a person of ordinary skill in the art would expect that all of these structurally similar diglycosidases could be easily isolated, given the sequence of the diglycosidase of *Aspergillus fumigatus*.

Furthermore, the specification clearly teaches how to use the naturally-occurring diglycosidases set forth in Table 6 against disaccharide glycosides that have a glucose moiety at the aglycon side (Example 16 on page 76).

Accordingly, Applicants respectfully request reconsideration and withdrawal of this aspect of the enablement rejection.

C. Claims 3, 23 and 25

Claims 3, 23 and 25 have been canceled, rendering the enablement rejection moot as to these claims.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

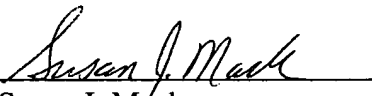
Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER


Susan J. Mack
Registration No. 30,951

Date: November 19, 2004